

# Assistive Technology Tools Writing



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# Understanding Writing Disabilities

- Students with writing disorders have trouble when their ability to generate text cannot keep pace with the flow of their ideas. Some students simply cannot retain ideas in their memory long enough to express them coherently in writing. Others have difficulty with spelling or with the motor demands of handwriting and key stroking. Some students with more significant motor impairments use adaptive methods for writing that can also slow down the process.

<http://www2.edc.org/NCIP/LIBRARY/wp/Profile.htm>



# Developmental Milestones in Writing

- These websites contain excellent articles related to the complexity of writing and a list of developmental milestones for writing.

[http://www.pbs.org/parents/strugglingtolearn/understanding\\_writing.html](http://www.pbs.org/parents/strugglingtolearn/understanding_writing.html)

- Interesting article on the misconception of writing disorders.

<http://learningdisabilities.about.com/od/learningdisabilitybasics/p/dysgraphia.htm>



# Writing Difficulties

- Writing disorders can be a consequence of one or a combination of these issues.
  - Writing Mechanics (pencil to paper)
    - Graphomotor (awkward pencil grip, slow and deliberate writing, illegible)
    - Spatial Ordering (space between letters and words, & poor use of lines)
    - Sequential Ordering transpose letters and spelling omissions, difficulties with staying on topic and sequential order of text

[http://www.pbs.org/parents/strugglingtolearn/understanding\\_writing.html](http://www.pbs.org/parents/strugglingtolearn/understanding_writing.html)



# Writing Difficulties

- Process of writing (organizing thoughts).
  - Attention
  - Memory (poor spelling, punctuation)
  - Language ( inappropriate use of language and difficulty with sentence structure and word order)
  - High Order Cognition (Creative writing, organization)

[http://www.pbs.org/parents/strugglingtolearn/understanding\\_writing.html](http://www.pbs.org/parents/strugglingtolearn/understanding_writing.html)





# Strategies to Consider

- For note taking
  - Let students draw important facts.
  - Give note taking paper to a peer so both students have a copy of the lecture.
  - Have the students record the lecture. Get permission from the teacher.
- Practice Writing
  - Put a green dot where the letter begins or to indicate where they should begin writing
  - Highlight an area in yellow to indicate the area where the student should form and keep their letters.

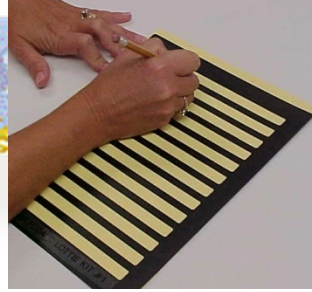


# Strategies to Consider

- Give students models of good writing and letter formation.
- Some students may benefit from the flow of cursive versus print.
- Reduce the length of the assignment.
- For more ideas visit:
  - [Considerations for Curriculum Assistive Technology](http://www.cpt.fsu.edu/ease/in/acom/needs/need_1.html)
  - [http://www.cpt.fsu.edu/ease/in/acom/needs/need\\_1.html](http://www.cpt.fsu.edu/ease/in/acom/needs/need_1.html)

# Writing Tools

- Pencil grips
- Evo or lighted pen
- Magic Rub
- Writing guides
- Page up or Slant boards
- Raised line paper
- Portable word processor
- Tape Recorder
- Voice recognition
- Spell Checkers & Thesaurus
- Word Predication Software
- Auditory Word Processor
- Sticky Notes
- Graphic Organizer





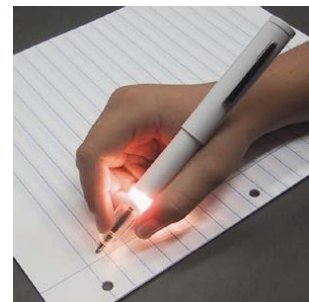
# Pencil Grip

- Pencil grips encourage proper hand-pencil positioning during writing. It also provides greater comfort, legibility, speed, and reduces hand fatigue.
- **Cost \$9.95 (set) or \$.50 each**



# Evo Pen and Lighted Pen

- Encourages correct positioning of the hand.
  - **Cost \$4.00**
- Lighted Pen helps by providing better lighting, improved tracking as you copy, and acts as temporary highlighting.
  - **Cost \$9.95**



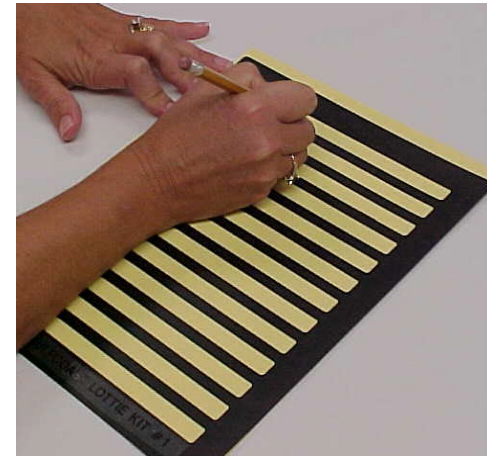
# Magic Rub Erasers

- This eraser helps to keep students from tearing their paper when they erase.
- **Cost \$.73**



# Writing Guides

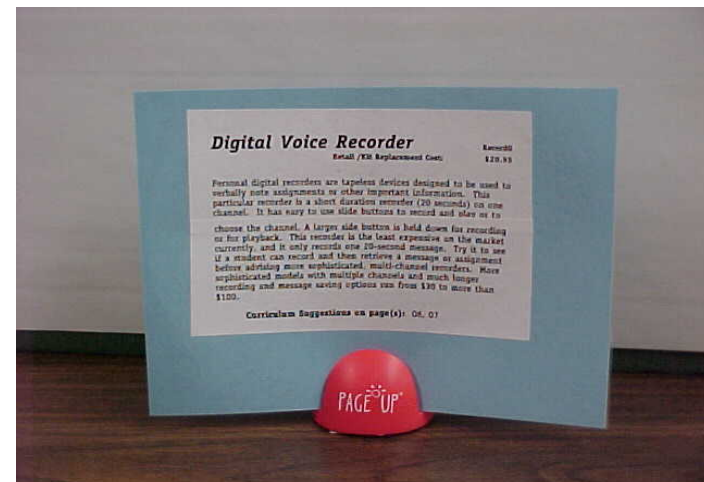
- A writing guide will help the student keep their writing on the lines and produce a legible response .
- **Cost \$4.50(page guide)**
- **Cost \$1.50 (signature)**





# Page Up

- Page Ups helps the student position the documents for better viewing and copying.
- **Cost \$6.95**





# Slant Boards

- Helps to achieve a better ergonomic position for writing.
  - **Cost \$32.95**
- A two or 3 inch binder works well too!



# Raised Line Paper

- Raised line paper provides a student with visual and tactile guidelines.
- **Cost \$16.50**
- **(Some raised line paper available at Wal-Mart)**



# Tape Recorders

- When the task is not for a writing grade but to check comprehension of subject matter consider the use of a small digital tape recorder. This allows the student to independently answer questions and demonstrate their knowledge of the subject matter without the interference of the writing disability.



# Portable Word Processors

- An alternative keyboard will help students, who cannot respond orally or produce legible handwritten responses to type answers. The processors are lightweight, have a long battery life, quick power up and can easily be used on the students desk.
- **AlphaSmart Neo -\$199.00**
- **Fusion -\$249**
- **QuickPad -\$189**







# Computer Access

- Students who need to use the computer for their written work output may also need additional accommodations in order to be successful. For example:
  - Shortened assignments
  - Extended time





# Computers

## ■ Benefits

- Computers allow students to type and edit their text.
- They are well accepted by their peers.
- Larger monitors.

## ■ Weakness

- Some computers are heavy and the battery may not last the entire school day.
- They are fragile.
- Start up time is longer than a portable word processor.

# Computer Access

- Use the built in system Accessibility in the Control Panel.
- Extended or mini keyboard
  - Extended keyboards help student with gross motor difficulties. (Intelli Keys, Big Keys...)
  - Mini keyboards assist students with limited range of motion.
- Track balls or joystick mouse
  - Alternative mice help students who have difficulty coordinating their eye hand movement.



# Computer Access

## ■ Touch Window

- Students simply touch the screen to make their selection.



## ■ Switch Interface

- A switch interface allows students with motor disabilities to use scanning software. This includes an onscreen keyboard for typing.





# Voice Recognition Software

- Voice recognition allows students to dictate their thoughts to a computer and alleviate spelling and motor problems.
- Issues:
  - Most programs require at least a 5<sup>th</sup> grade reading level in order to train the computer.
  - The student must have a consistent voice quality.
  - The student must have the patience and cognitive skills necessary to correct any word that the computer misunderstands so their voice files do not get corrupt.





# Voice Recognition Issues

- The student must be able to say the correct punctuation and paragraph indentation as part of the dictation.
- The area where the dictation takes place should be relatively quiet so the computer does not pick up background noise.
- Since the student will be speaking their answers, the area must be located where it will not disturb others.
- The computer should be relatively new and meet the manufactures specification for the large voice files.





# Voice Recognition

- Dragon Naturally Speaking
- Word XP and 2003
- Keystone 2000 (works with Dragon)

<http://www.abledata.com/abledata.cfm?pageid=113582&orgid=113395>

This objective of the following website is to provide information about a variety of AT products.

<http://www.abledata.com/>



# Spelling Difficulties

- Spelling errors can occur as a result of student challenges with memory, attention, phonemic awareness and/or phonics.
- Students who are poor spellers will often use small, common words (big/little, good/bad) in their writing because they can spell them.

# Spell checkers & Thesaurus

- Talking dictionaries, spell checkers & thesaurus may improve student's reading and writing skills.
- Cost:49.95 ([www.Franklin.com](http://www.Franklin.com) )
- Word Processors identify misspelled words and often have a built in thesaurus.





# Word Prediction Software

- Word predication software reduces the number of keystrokes and assists some students with spelling difficulties.
- As the student selects a letter, a list of words appears on the screen beginning with the letter or letter sequence typed. Each time a letter is added, the list is updated. When the desired word appears in the list, students can choose the word and insert it into their text with a single keystroke (each word is numbered so students need only type in a number when the right word appears).
- For many student it is helpful for the list of words to be read.



# Word Prediction Software

- Cowriter
- Built into
  - Read, Write, Gold
  - Premier
  - Kurzweil
  - Wynn





# Auditory Word Processors

- Auditory word processors allow students to hear each letter, word or sentence as it is typed. This resource helps students to connect the visual with the auditory and help those who omit words.
- <http://atto.buffalo.edu/registered/ATBasics/Curriculum/Writing/talkingProcessors.php>



# Auditory Word Processors

- Natural Readers (Free)  
[www.naturalreaders.com](http://www.naturalreaders.com)
- Write Outloud  
<http://www.donjohnston.com>
- Intellitalk II  
<http://www.intellitools.com>
- CAST eReader  
<http://www.cast.org>  
Read and Write  
<http://www.texthelp.com>

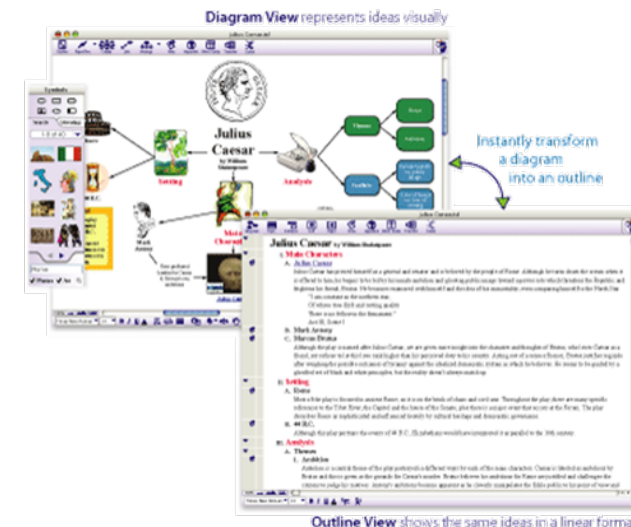


# Free Online Writing Resources

- [http://www.learningpage.com/free\\_pages/galleries](http://www.learningpage.com/free_pages/galleries)
- [www.dltk-kids.com/type/writing\\_paper.htm](http://www.dltk-kids.com/type/writing_paper.htm)
- [www.handwritingworksheets.com/](http://www.handwritingworksheets.com/)
- [www.literacycenter.net/parents\\_teacher/writing\\_center.htm](http://www.literacycenter.net/parents_teacher/writing_center.htm)
- [www.first-school.ws](http://www.first-school.ws)
- <http://donnayoung.org/penmanship/index.htm>

# Graphic Organizers (Webbing & Outlines)

- Graphic organizers & outlines help students plan, categorize & classify their thoughts during the writing process.
- They are excellent study skill tools.



# Sticky Notes

- Use sticky notes to create story outlines, webs and as a brainstorming tool. The student can move the notes around to organize their writing.







# Free Graphic Organizer

- <http://www.region15.org/curriculum/graphicorg.html>
- <http://www.graphicorganizers.com/>
- [www.readwritethink.org/materials/storymap](http://www.readwritethink.org/materials/storymap)
- <http://www.eduplace.com/graphicorganizer>
- [www.freeology.com/graphicorgs](http://www.freeology.com/graphicorgs)



# Webbing Software

These tools help students plan and organize their thoughts.

- Kidspiration and Inspiration
  - <http://www.inspiration.com> (\$60)
- Draft Builder
  - [www.donjohnston.com](http://www.donjohnston.com) (\$149)

# Writing Software

- Startwrite is an excellent software for teachers to customize their own worksheet and lessons.
  - Cost \$39.95
- [http://www.startwrite.com/teachers\\_homeschoolers\\_parents.php](http://www.startwrite.com/teachers_homeschoolers_parents.php)

